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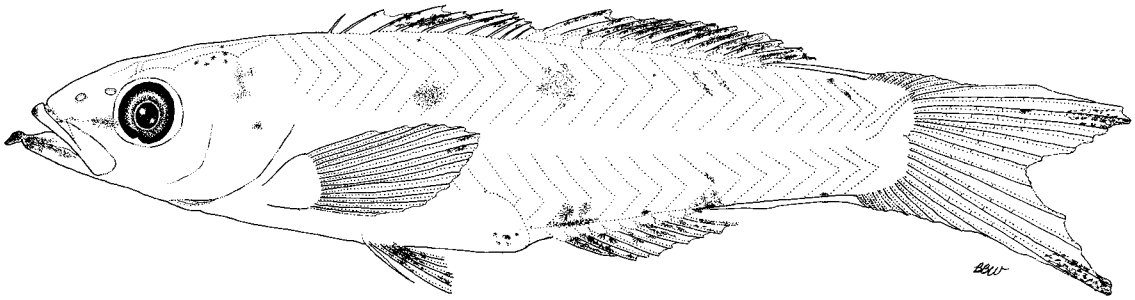
PRELIMINARY GUIDE TO THE IDENTIFICATION OF THE EARLY LIFE HISTORY STAGES OF CIRRHITID FISHES OF THE WESTERN CENTRAL NORTH ATLANTIC

BY

MARIA M. CRIALES



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
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It will be a chapter entitled Cirrhitidae in "The early life history stages of fishes of the western central North Atlantic".

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FAMILY CIRRHITIDAE: Hawkfishes

by Maria M. Criales

Species of the family Cirrhitidae are known in the western and eastern Atlantic, Indian, and Pacific, with the majority represented in the Indo-Pacific. All 35 species are found in tropical, coastal waters and are usually small and brightly colored (Robins et al. 1986). Cirrhitid fishes live in rocky and coral habitats (mostly in crevices) and have many superficial features in common with the scorpaenids (Böhlke & Chaplin 1968). Only one species, *Amblycirrhitus pinos*, is known from the central western North Atlantic.

*Amblycirrhitus pin*os, the redspotted hawkfish, has 41 to 44 lateral-line scales, with a tuft of cirri from a membrane near the tip of each dorsal spine. The body has five broad dark bars, the first three yellowish brown, the upper rounded part of the fourth black, and the fifth (across the caudal peduncle) black with white interspaces between the first four dark bars bisected by narrow yellowish brown bars (Randall 1968). The anterior part of the head and body and dorsal fin has bright orange-red spots. Adult specimens reach up to 8 cm (4 inches). The redspotted hawkfish has been reported in south Florida, Bahamas, Texas, northern South America, and St. Helena Island (Robins et al. 1986).

Information about cirrhitid larvae for the western Atlantic is very scarce. A drawing of a postflexion *A. pinos* larvae was provided by Johnson (1984) (Fig. 1B), but no descriptive notes accompanied it. Larvae of at least three Indo-Pacific species have been reared in laboratory (Tanaka & Suzuki 1991, Tanaka 1994, 1995) and other larvae have been described from plankton samples (e.g. Leis and Rennis 1983, Watson 1996ar). Based on these descriptions and material examined from the CALCOFI study area, Watson (1996ar) provided an excellent review of cirrhitid larvae for the Indo-Pacific with general features to family level.

Cirrhitid larvae were rare in our plankton collections. Four examined specimens were captured in the Straits of Florida (all postflexion, 8.0-13.2 mm) and two others were obtained in proximity to Barbados (one preflexion, 4. 2 mm and one postflexion, 12.3 mm). These specimens allow us to make a general description of hawkfish larvae. Illustrations (see Fig. 1) are presented for preflexion and postflexion stages and Table 1 provides meristic data.

Atlantic hawkfish larvae have a moderately elongate and slender body; the snout is acute, and the anterior border of the lower jaw ends in a pigmented barbel, which is larger in the postflexion stage and considered as the diagnostic family feature. The eyes are large with a relatively wide oval shape and well pigmented in the postflexion stage but eyes in the preflexion specimen were missing. The snout in the preflexion specimen is elongate and pointed and becomes shorter and less elongate later in development. The preflexion specimen shows the caudal, dorsal and anal fin anlage, with the caudal fin anlage surrounded by numerous thick striations. The gut in the preflexion is long about half of the body length. The postflexion stage has a bifurcate caudal fin. There are 26 myomeres in both preflexion and postflexion stages. Two pigmentation patterns were common on cirrhitid specimens. Both (preflexion and postflexion) possess four rounded brownish melanophores located dorsally on the midbrain and distributed in two paired rows, with the two posterior melanophores being larger. The other common pigmentation pattern is a row of paired melanophores (postflexion 8, preflexion 10) distributed along the lower mandible and continuing to

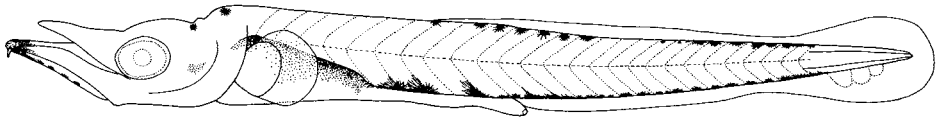
the anterior barbel. Besides these two common patterns, the preflexion specimen shows a group of melanophores running ventrally from the base of the pectoral fin to the end of the caudal fin anlage, and another group running dorsally along the dorsal fin anlage. The gut of the preflexion specimen was also well pigmented all along the ventral margin of the tail.

Table Cirrhitidae 1. Meristics for the family Cirrhitidae

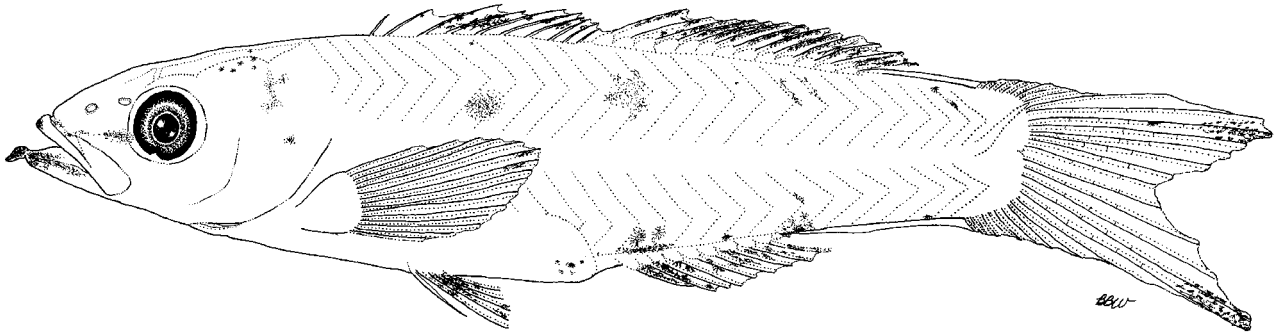
Stage	Collection Site	Size(mm)	D_1	D_2	A	P_1	P_2	C	Myomere
Preflexion									
	Barbados	4.2							10+16
Postflexion									
	Starits of Florida	8.0	VIII?	12	9				
	Starits of Florida	8.6	IX	12	9				
	Starits of Florida	10.8	IX	12	9				
	Barbados	12.3	IX	12	8	15	I,5	12/13	26+
	Starits of Florida	13.2	X?	13?	damaged	15?	I,5	8/7	
Adult			X	11	III,6	14	I,5	8/7	10+16=26

Figure 1 Larvae of the cirrhitid fish *Amblycirrhitus pinos*. A). preflexion stage, specimen from Barbados. 4.2 mm NL. B) postflexion stage, 13.2 mm SL (from Johnson 1984).

A



B



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